



Remarks

PRELIMINARY REMARKS PRIOR TO ADDRESSING MERITS OF OFFICE

ACTION

NEW COUNSEL/CORRESPONDENCE ADDRESS

Prior to addressing the Office Action, please note that applicant has appointed new patent counsel (Mark Gilbreth) and that the **correspondence address has been changed to:**

**J. M. (Mark) Gilbreth
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AUG 20 2002
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PRELIMINARY AMENDMENT

Also prior to addressing the Office Action, please note that a "Preliminary Amendment" has been filed correctly adding current pending claims 16-38.

ADDRESSING MERITS OF OFFICE ACTION

The merits of the Office Action are addressed below. For convenience, paragraph numbers utilized below correspond to like paragraph numbers in the Office Action.

ALLOWED CLAIMS

15. The kind allowance of claims 1-12, 14 and 15 is respectfully acknowledged.

SURRENDER OF PATENT

1. The Office Action notes that the original patent, or an affidavit or declaration as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed.

In response, applicant understands this requirement, and confirms his 5/24/01 offer to surrender the original patent.

REISSUE OATH/DECLARATION

2. The Office Action notes that the reissue oath/declaration filed with this application is defective because it fails to identify at least one error which is relied upon to support the reissue application.

In response, applicant respectfully notes that his "Declaration of Richard Alan Haase," submitted with the reissue application detailed the error. Specifically, the Examiner's attention is kindly directed to paragraphs 6-9 of that Declaration.

MANNER OF MAKING AMENDMENTS

3. The Office Action notes that the Amendment filed with the typed out version of the specification proposes amendments to the double column printed patent that do not comply with 37 C.F.R. 1.121(b). A supplemental paper correctly amending the reissue application is required.

In response, a "Preliminary Amendment" adding claims 16-38 is submitted herewith.

4. The Office Action notes that any subsequent amendment to the specification and/or claims must comply with 37 C.F.R. 1.121(b).

In response, applicant so acknowledges the proper mechanism for amending the claims and/or specification.

OBJECTIONS

5. Claims 1, 4, 7, 8, 10, 11, 14, 15 and 25 stand objected to because of informalities. The objection is respectfully traversed.

Specifically, the Office Action notes that the word "polyacrylamidee" should be rewritten as "polyacrylamide."

In response, as suggested, "polyacrylamidee" has been rewritten as "polyacrylamide."

REJECTION UNDER 35 U.S.C. 112

7. Claims 13, 24, and 34-36 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The rejection is respectfully traversed.

Specifically, the Office Action notes there is insufficient antecedent basis in claim 24 for the limitation "the polymeric quaternary ammonium compounds."

In response, the limitation "the polymeric quaternary ammonium compounds" has been amended to now read "the polymeric quaternary ammonium compound."

Further specifically, the Office Action notes claims 13 and 34-36 as being indefinite because it is unclear when the biological sludge is mixed with primary sludge with respect to the other steps of the method.

These claims have been amended to recite that the biological sludge further comprises primary sludge.

REJECTION UNDER 35 U.S.C. 101

9. Claims 16, 23, 30 and 34 stand rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1, 2, 13 and 14, respectively of prior U.S. Patent No. 5,846,435. The rejection is respectfully traversed.

In response, Independent claim 16 has been amended to alternatively incorporate the limitations of claims 19 and 20 (which were indicated as being allowable if they incorporated the limitations of claim 16). Thus, claim 16 is now believed to be allowable, because it contains the allowable subject matter of claims 19 and 20.

Claims 23, 30 and 34, all dependent upon claim 16, are now believed to be likewise allowable.

OBVIOUSNESS-TYPE DOUBLE PATENTING

11. Claims 32 and 33 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6 and 7 of U.S. Patent No. 5,846,435. The rejection is respectfully traversed.

Applicant respectfully requests that this rejection be held in obedience until the claims are otherwise allowable. At that time, should the claims still be subject to this rejection, applicant will file a terminal disclaimer.

REJECTIONS UNDER 35 U.S.C. 103

Introduction - Significance of the Invention

Prior to addressing the two obviousness rejections, a short explanation of the significance the invention is provided.

The year 1993 witnessed a paradigm shift in water treatment, with the promulgation of the the National Sewage Sludge Use and Disposal Regulation (40 C.F.R. § 503).

Prior to 1993, water treatment plants employed mesophyllic bacteria. These bacteria were favored, because they were active at ambient temperatures of the water treatment plant. Therermophilic bacteria would require heating, which of course adds cost/time to the water treatment process. Thus, while it might have been known that thermophilic bacteria could, be used in water treatment plants, it was not ever done because of the increased costs. Therefore, there was no real data on what process advantanges/disadvantages such thermophilic bacteria would cause (other than increased cost/time).

In fact, the prior art (U.S. Patent No. 4,040,953 to Ort) actually suggests that thermophilic operation has certain advantages including a lower solids retention time and dewaterers more readily.

However, after 1993, under certain circumstances under § 503, water treatment plants would employ, thermophilic bacteria.

Thus, before 1993, water treatment plants employed mesophilic bacteria. After 1993, the conventional process was to employ mesophilic bacteria, and while by far the vast majority of water treatment plants still employed mesophilic bacteria, a very small number

of non-conventional plants were employing thermophilic bacteria.

The major distinction between mesophilic and thermophilic bacteria is that mesophilic bacteria naturally secrete a polysaccharide that is tackifying (i.e., clump them together), whereas thermophiles lack such a polysaccharide and appear "buckshot" (i.e., scattered). This tackifying polysaccharide encourages and helps promote a natural coagulation and a natural formation of microfloc of the mesophiles.

Thus, one difference between dewatering of mesophiles and thermophiles, is that mesophiles have the presence of this polysaccharide to encourage and help promote a natural coagulation and a natural formation of microfloc of the mesophiles, whereas thermophiles lack such a polysaccharide. Thus, the mesophiles generally have a "head start" in coagulation and formation of microfloc.

1st Rejection Under 35 U.S.C. 103(a)

13. Claims 17, 28 and 35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,481,115 to Wade et al. The rejection is respectfully traversed.

The Office Action does note that the claims differ from Wade et al. by reciting that the sludge has been digested thermophilically, and that aluminum sulfate is added (claim 17), that the polyacrylamide and aluminum sulfate are added in a specific ratio (claim 28), and that the sludge is mixed with primary sludge (claim 35).

In response, it is respectfully noted that Wade et al. teaches the **sequential addition** of first, a "high molecular weight polyelectrolyte" (i.e., polyacrylamide), followed by,

second, an inorganic conditional (i.e., aluminum salt).

The claims as formerly written distinguished Wade at least by requiring the opposite order, that is, the addition of the salt followed by the addition of the polyacrylamide. The claims as now amended distinguish Wade at least by requiring that the polyacrylamide be added either after or simultaneously with the salt.

Support for this amendment can be found at pages 12-14 of the application. Specifically, "Method one" (page 11, starting at line 5), "Method two" (page 11, starting at line 20), and "Method three" (page 12, starting at line 20), all teach the sequential addition of the salt followed by the polyacrylamide. And, "Method four" (page 13, starting at line 13), teaches the simultaneous addition of the salt and polyacrylamide.

2nd Rejection Under 35 U.S.C. 103(a)

Claims 18, 29 and 36 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,642,619 to Lo Sasso et al. The rejection is respectfully traversed.

In response, the claims as amended distinguish Lo Sasso et al at least by requiring that the polyacrylamide be either a "cationic or anionic" polyacrylamide.

Lo Sasso et al. discloses and teaches the use of a "nonionic" polyacrylamide. *See*, Lo Sasso, Abstract; col. 2, line 6; line 42; and line 46; and claims 1 and 6.

Because of the "scattered" nature of the mesophiles as opposed to the readily forming microflocs of the thermophiles, applicant requires that the polyacrylamide be either a "cationic or anionic" polyacrylamide. Lo Sasso, dealing with thermophiles has no need to utilize

anything other than a "nonionic" polyacrylamide.

OTHERWISE ALLOWABLE CLAIMS

16. Claim 13 is indicated as being allowable if rewritten to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, and to include all of the limitations of the base claim and any intervening claims.

Claim 13, has been rewritten to overcome the rejection (see Paragraph 7 above and claim 13 as amended). As the base claim (1) is indicated as being allowable (see Paragraph 15 above), claim 13 is now believed to be allowable.

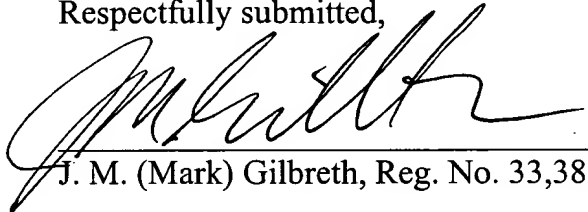
Claims 19-22, 25-27, 31, 37 and 38 are all indicated as being allowable if rewritten to include the limitations of claim 16. To facilitate this, applicant has alternatively incorporated the limitations of claim 19 ("aluminum sulfate") and claim 20 ("ferric chloride") into claim 16 (i.e., "at least one of aluminum sulfate or ferric chloride"). Claims 19 and 20 have been deleted. Claim 21 has been amended to now be dependent upon claim 16 and has been further amended to recite that both "aluminum sulfate or ferric chloride" are added. Claims 26 and 27 have been amended to now be dependent upon claim 16. Claims 31, 37, and 38 are believed to be allowable as written.

Claim 22 was indicated as being allowable if rewritten to include the limitations of claim 17. However, as claim 17 is now believed to be allowable, claim 22 is likewise believed to be allowable.

If it would be of assistance in resolving any issues in this application, the Examiner is kindly invited to contact applicant's attorney Mark Gilbreth or agent Mary Gilbreth, Ph.D., at 713/667-1200.

As a final reminder, please note that correspondence address has been changed in the most recent power of attorney to that shown below.

Respectfully submitted,



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Date: August 14, 2002

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